

What is claimed is:

1. An image data generating apparatus comprising:
 - means for generating image data;
 - means for generating color space information to be used in processing said image data by an image processing apparatus; and
 - means for storing said image data in association with said color space information.
2. An image data generating apparatus according to Claim 1, further comprising:
 - means for designating color space information for use by said image processing apparatus; and
 - means for storing a plurality of items of color space information designated for different types of color spaces, wherein
 - said means for designating color space information includes
 - means for displaying said plurality of items of color space information, and
 - means for selecting one item of color space information from among said displayed items of color space information.
3. An image data generating apparatus according to Claim 1, further comprising:
 - means for designating color space information for use by said image processing apparatus; and
 - means for storing a plurality of combinations of identifying information for candidate image processing apparatuses and associated color space information for each candidate image processing apparatus; wherein
 - said means for designating color space information includes
 - means for displaying the candidate image processing apparatuses for performing image processing, and
 - means for selecting one of the candidate image processing apparatuses from among the candidate image processing apparatuses displayed by said means for displaying.

4. An image data generating apparatus according to Claim 1, further comprising:
means for assembling an output file that contains said image data, and
said color space information.

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5. An image data generating apparatus according to Claim 4, further comprising:
means for interfacing with an external device and for communicating said
output file to said external device.

10 6. An image data generating apparatus comprising:

means for acquiring image data;

means for designating with color space information an output color space to
be used by an image processing apparatus in color space conversion, said image
processing apparatus being a different apparatus than said means for acquiring data;
and

means for generating an image file containing

image data obtained by said means for acquiring, and
the color space information.

20 7. An image data generating apparatus according to Claim 6, wherein:

said output color space having a gamut that is at least as wide as a color
space used in synthesis of said image data.

8. A method for generating an image file, comprising steps of:

25 generating image data;

generating an image file containing

image data generated in said generating step, and

color space information to be used in processing said image data by an
image processing apparatus; and

30 storing said image data in association with said color space information.

9. The method of Claim 8, further comprising steps of:

designating color space information for use by said image processing apparatus; and

storing a plurality of items of color space information designated for different types of color spaces, wherein

- 5 said step of designating color space information includes steps of
 displaying said stored color space information, and
 selecting one item of color space information from among said
displayed items of color space information.

10 10. The method of Claim 8, further comprising steps of:
 designating color space information for use by said image processing
apparatus; and
 storing a plurality of combinations of identifying information for candidate
image processing apparatuses and associated color space information for each
candidate image processing apparatus; wherein
 said step of designating color space information includes
 displaying the candidate image processing apparatuses for performing
image processing, and
 selecting one of the candidate image processing apparatuses from
among the candidate image processing apparatuses displayed in said displaying
step.

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20 11. The method of Claim 8, further comprising a step of:
 assembling an output file that contains said image data, and said color
space information.

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30 12. The method of Claim 11, further comprising a step of:
 sending said output file to an external device via at least one of an electric
signal and an electromagnetic signal.

35 13. A method for generating image data, comprising steps of:
 acquiring image data;

designating with color space information an output color space to be used by an image processing apparatus in color space conversion, said image processing apparatus being a different apparatus than a apparatus employed to accomplish said acquiring step; and

- 5 generating an image file containing
 image data obtained by said acquiring step, and
 the color space information.

14. The method of Claim 13, wherein:

- 10 said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

15. A propagated data signal for conveying image data and color space information to an image processing apparatus, said propagated data signal comprising:

- an image data file containing digital image data of a subject captured on an image data generating apparatus; and
the color space information, said color space information being associated with an image processing apparatus that performs a color space conversion on said image data in said image processing apparatus.

20 16. The propagated data signal of Claim 15, wherein:

- said image data file and said color space information being included as part of an Exif file that is embodied in said propagated data signal.

25 17. An image data generating apparatus comprising:

- an image data generation mechanism configured to generate image data;
 an image file assembly mechanism configured to assemble an image file containing image data generated by said image data generation mechanism, and color space information to be used in processing said image data by an image processing apparatus; and
 a memory configured to store said image data in association with said color space information.

18. An image data generating apparatus according to Claim 17, wherein:
said color space information includes matrix values for use in color space conversion processing to be executed by said image processing apparatus.
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19. An image data generating apparatus according to Claim 17, further comprising:
a designation mechanism configured to designate color space information for use by said image processing apparatus, wherein
said memory configured to hold a plurality of color space information entries, each containing color space information associated with different candidate image processing apparatuses,
10 said designation mechanism includes
a display that is configured to display said plurality of entries of color space information, and
a selection mechanism that is configured to select one of said plurality of entries of color space information from among the plurality of entries presented by said display.
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20. An image data generating apparatus according to Claim 17, further comprising:
a designation mechanism configured to designate color space information for use by said image processing apparatus, wherein
said memory is configured to hold a plurality of combinations of identifying information for candidate image processing apparatuses and associated color space information for each candidate image processing apparatus, wherein
25 said designation mechanism includes
a display configured to display the candidate image processing apparatuses for performing image processing, and
a selection mechanism configured to select one of the candidate image processing apparatuses from among the candidate image processing apparatuses
30 presented by said display.
21. An image data generating apparatus according to Claim 17, wherein:

the image generation mechanism being at least one of a DSC, a DVC, and a scanning device.

22. An image data generating apparatus according to Claim 21, wherein:

5 image generation mechanism being the DSC.

23. An image data generating apparatus according to Claim 17, further comprising:

10 a file assembly mechanism configured to compile an output file that contains said image data, and said color space information.

24. An image data generating apparatus according to Claim 23, wherein:

15 said output file being an Exif file.

25. An image data generating apparatus according to Claim 24, wherein:

20 the color space information being a tag stored in a Makernote portion of the Exif file.

26. An image data generating apparatus according to Claim 17, wherein:

25 said memory includes a removable memory card.

27. An image data generating apparatus according to Claim 23, further comprising:

30 an I/O interface configured to transmit said output file as at least one of an electric signal and an electromagnetic signal.

25 28. An image data generating apparatus comprising:

 an image file acquisition mechanism configured to acquire image data;

 a designation mechanism configured to designate an output color space to be used by an image processing apparatus in color space conversion of said image data, said image processing apparatus being a different apparatus than said image

30 file acquisition mechanism; and

 a file assembly mechanism configured to assemble an image file containing image data obtained by said image file acquisition mechanism, and

- the color space information.
29. An image data generating apparatus according to Claim 28, wherein:
said output color space having a gamut that is at least as wide as a color
space used in synthesis of said image data.
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30. A computer program product, comprising:
a computer storage medium; and
a computer program code mechanism embedded in the computer storage
10 medium for causing a computer to generate an image file, the computer program
code mechanism having
a first computer code device configured to generate image data, and
a second computer code device configured to generate an image file
containing said generated image data, together with associated color space
information for use by an image processing apparatus.
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31. The computer program product of Claim 30, further comprising:
a third computer code device configured to designate color space information
for use by said image processing apparatus, wherein
20 said computer storage medium configured to hold a plurality of color space
information entries, each containing color space information associated with different
candidate image processing apparatuses,
the third computer code device including
a display mechanism that is configured to provide a signal output
25 suitable for presentation on a display so as to present said plurality of entries of color
space information, and
a selection mechanism that is configured to select one of said plurality
of entries of color space information from among the plurality of entries presented by
said display.
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32. The computer program product of Claim 30, further comprising:

a third computer code device configured to designate color space information for use by said image processing apparatus, wherein

 said computer storage medium configured to hold a plurality of combinations of identifying information for candidate image processing apparatuses and

5 associated color space information for each candidate image processing apparatus, wherein

 said designation mechanism includes

 the third computer code device including

10 a display mechanism that is configured to provide a signal

 output suitable for presentation on a display so as to present the candidate image processing apparatuses for performing image processing, and

15 a selection mechanism that is configured to select one of the candidate image processing apparatuses from among the candidate image processing apparatuses presented by said display.

33. The computer program product of Claim 30, further comprising:

 a third computer code device configured to compile an output file that contains said image data, and said color space information.

34. A computer program product, comprising:

 a computer storage medium; and

 a computer program code mechanism embedded in the computer storage

25 medium for causing a computer to acquire image data, the computer program code mechanism having

 a first computer code device configured to implement an image file acquisition mechanism configured to acquire image data,

 a second computer code device configured to implement a designation

30 mechanism configured to designate an output color space to be used by an image processing apparatus in color space conversion of said image data, said image

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- processing apparatus being a different apparatus than said image file acquisition mechanism; and
- a third computer code device configured to implement a file assembly mechanism configured to assemble an image file containing
- 5 image data obtained by said image file acquisition mechanism, and the color space information.
35. The computer program product of Claim 34, wherein:
- said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.
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36. A computer program product, comprising:
- a computer storage medium; and
- a computer program code mechanism embedded in the computer storage medium for causing a computer to acquire an image file, the computer program code mechanism having
- 15 a first computer code device configured to implement an image file data acquisition mechanism that retrieves said color space information from said image file; and
- 20 a second computer code device configured to implement a color conversion processing mechanism that converts the color space of said image data on the basis of said color space information when said color space information has been retrieved.
- 25 37. The computer program product of Claim 36, wherein:
- if said color space information is not retrieved, said color conversion processing mechanism converts the color space of said image data using predetermined color space information.
- 30 38. An image processing apparatus for performing image processing on image files containing image data and color space information, comprising:
- means for acquiring an image file containing image data;

means for retrieving said color space information from said image file acquired by said means for acquiring; and

means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

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39. An image processing apparatus according to Claim 38, wherein:

if said color space information is not retrieved, said means for converting the color space converts the color space of said image data based on predetermined color space information.

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40. An image processing apparatus according to Claim 38, wherein:

said image data contained in said image file is represented by a first color space;

said means for acquiring an image file converts the color space of the image data contained in said image file from said first color space to a second color space; and

said means for converting the color space converts the color space of said image data from said second color space to a third color space.

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41. An image processing apparatus according to Claim 40, wherein:

said first color space is a YCbCr color space;

said second color space is a first RGB color space; and

said third color space is a second RGB color space wherein at least a portion thereof has a gamut equal to or wider than said first color space.

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42. An image processing apparatus according to Claim 41, wherein:

said second color space has a width at least equal to that of a color space during synthesis of said image data.

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43. A method for performing image processing on image files containing image data and color space information, comprising steps of:

acquiring an image file containing image data;

retrieving said color space information from said image file acquired in said acquiring step; and

converting the color space of said image data based on said color space information retrieved in said retrieving step.

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44. The method of Claim 43, further comprising:

determining when said color space information is not retrieved, and then converting the color space of said image data based on predetermined color space information.

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45. An image processing apparatus for performing image processing on image files containing image data and color space information, comprising:

an image file acquisition mechanism configured to acquire an image file containing image data;

a color space retrieving mechanism configured to retrieve said color space information from said image file acquired by said image file acquisition mechanism; and

a color space converter configured to convert the color space of said image data based on said color space information retrieved by said color space retrieving mechanism.

46. An image processing apparatus according to Claim 45, wherein:

if said color space information is not retrieved, color space converter converts the color space of said image data based on predetermined color space information.

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47. An image processing apparatus according to Claim 45, wherein:

said image data contained in said image file is represented by a first color space;

30 said image file acquisition mechanism converts the color space of the image data contained in said image file from said first color space to a second color space; and

10 said color space converter converts the color space of said image data from
said second color space to a third color space.

- 15 48. An image processing apparatus according to Claim 47, wherein:
5 said first color space is a YCbCr color space;
 said second color space is a first RGB color space; and
 said third color space is a second RGB color space wherein at least a portion
thereof has a gamut equal to or wider than the first RGB color space.
- 20 49. An image processing apparatus according to Claim 48, wherein:
10 said second color space has a width at least equal to that of a color space
during synthesis of said image data.
- 25 50. An image processing apparatus according to Claim 48, wherein:
15 said third color space is a CIELAB color space in place of the second RGB
color space.
- 30 51. An image processing apparatus according to Claim 45, further comprising:
20 an I/O device configured to transmit said image data after being converted into
a color space defined by said color space information as at least one of an electric
signal and an electromagnetic signal.
52. A system for processing image data comprising:
25 an image data generating apparatus, including
 means for generating image data,
 means for generating an image file containing
 image data generated by said means for generating, and
 color space information to be used in processing said image
 data by an image processing apparatus, and
30 means for storing said image data in association with said color space
information in an image file; and
 the image processing apparatus, including

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- means for acquiring the image file containing the image data and the color space information,
- means for retrieving said color space information from said image file, and
- 5 means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

53. A system for processing image data comprising:

- 10 an image data generating apparatus, including,
- means for acquiring image data,
- means for designating with color space information an output color space to be used by an image processing apparatus in color space conversion, said image processing apparatus being a different apparatus than said means for acquiring, and
- 15 means for generating an image file containing
- image data obtained by said means for acquiring, and
- the color space information; and
- the image processing apparatus, including,
- means for acquiring the image file,
- means for retrieving said color space information from said image file acquired by said means for acquiring, and
- 20 means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

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54. A method for processing image data, comprising steps of:

- generating image data;
- generating an image file containing
- 30 image data generated in said generating step, and
- color space information to be used in processing said image data by an image processing apparatus;

storing said image data in an output image file in association with said color space information;

acquiring the output image file containing image data;

retrieving said color space information from said output image file acquired in

5 said acquiring step; and

converting the color space of said image data based on said color space information retrieved in said retrieving step.

55. An image processing system, comprising:

10 an image data generating apparatus, including,

an image data generation mechanism configured to generate image data,

an image file assembly mechanism configured to assemble an image file containing image data generated by said image data generating apparatus, and color space information to be used in processing said image data by an image processing apparatus,

a memory configured to store said image data in an output image file in association with said color space information; and

the image processing apparatus including

an image file acquisition mechanism configured to acquire the output image file containing image data,

a color space retrieving mechanism configured to retrieve said color space information from said output image file acquired by said image file acquisition mechanism, and

25 a color space converter configured to convert the color space of said image data based on said color space information retrieved by said color space retrieving mechanism.

56. An image processing system comprising:

30 an image data generating apparatus, including

an image file acquisition mechanism configured to acquire image data;

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a designation mechanism configured to designate an output color space to be used by an image processing apparatus in color space conversion of said image data, said image processing apparatus being a different apparatus than said image file acquisition mechanism, and

5 a file assembly mechanism configured to assemble an image file containing

 image data obtained by said image file acquisition mechanism, and

 the color space information; and

10 the image processing apparatus including

 an image file acquisition mechanism configured to acquire the image file,

 a color space retrieving mechanism configured to retrieve said color space information from said image file, and

 a color space converter configured to convert the color space of said image data based on said color space information retrieved by said color space retrieving mechanism.